Compression-Ignition Engines

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-02-003:

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)						
2010	AKBXL.719KCB	0.479, 0.719	Diesel	3000						
	FEATURES & EMISSION		TYPICAL EQUIPMENT APPLICATION							
	Indirect Diesel Inje	ection	Generator Set, Other Industrial Equipment							

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for hydrocarbon (HC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED	EMISSION				EXHAUST (g/kw	OPACITY (%)					
POWER CLASS	STANDARD CATEGORY		нс	NOx	NMHC+NOx	co	PM	ACCEL	PEAK		
0 ≤ kW < 19	Tier 4	OPTIONAL STD	N/A	N/A	7.5	6.6	0.40	20	15	50	
		CERT			6.2	3.5	0.24	6	5	10	

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has complied with the more stringent set of standards from the various power categories in conformance with Section 1039.230 (e) of the "California Exhaust Emission Standards and Test Procedures for 2008 and Later Tier 4 Off-Road Compression-Ignition Engines, Part I-C" adopted October 20, 2005.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this

day of December 2009.

Annette Hebert, Chief

Mobile Source Operations Division

## **Engine Model Summary Form**

KUBOTA Corporation Manufacturer:

Nonroad Cl Engine category:

EPA Engine Family. AKBXL.719KCB

Mfr Family Name: N/A

Running Change Process Code:

Attadoment

EO# U-R-0>5-0418

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9.Emission Control Device Per SAE J193	EN LOS	EM	<b>T</b>	EM	<b>3</b>	EM	EM	EM	<b>M</b>	EM	<b>E</b>	EM	8	EM	8	EM	3	EM	E E	EM	M	EM	EM	EM	EM	E
8.Fuel Rate: 9.Emission Control (lbs/hr)@peak torque Device Per SAE J1930	<b>1</b>	4.8	4.0	6.5	5.6	5.9	5.8	6.2	6.9	5.5	6'9	5.6	3.8	5.6	5.2	4.3	5.3	3.8	7.3	4.9	1.8	4.6	3	4.1	4.2	3.5
7.Fuel Rate: mm/stroke@peak torque	16.3	14.4	16.3	14.9	13.9	15.9	15.8	14.2	16.1	15.0	15.9	15.1	14.2	14.0	14.2	13.6	15.8	14.2	15.6	14.0	15.2	16.6	16.2	14.7	16.5	14.3
6.Torque @ RPM (SEA Gross)	33.8@2600	29.9@2000	32.2@2600	31.3@2600	29.6@2400	33.3@2200	33.1@2200	29.7@2600	33.9@2200	31.9@2200	33.8@2200	32.1@2200	29.6@1600	29.4@2400	30.2@2200	27.2@1900	32.1@2000	29.6@1600	31.8@2800	28.8@2100	30.8@2400	22.7@2500	21.9@2600	20.3@2500	22.1@2300	20.1@2200
5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	1.6	6.5	83	7.7	1.1	7.4	72	7.1	72	6.6	6.5	6.5	£3	6.3	0.0	4.9	6.0	4.2	3	5.5	6.5	6.2	6.1	4.9	4.9	4.2
4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	15.0	13.0	14.5	14.3	14.3	13.8	19.7	14.1	75	13.3	13.3	13.9	12.5	14.0	13.8	13.4	14.2	12.5	15.0	13.7	13.3	15.4	15.2	14.6	14.6	14.3
3.BHP@RPM (SAE Gross)	20.0@3600	15.6@3000	18.8@3400	17.7@3200	17.7@3200	16.9@3200	16.6@3200	16.6@3000	16.6@3000	15.4@2950	15.2@2900	15.4@2800	10.3@2050	15.2@2700	14.5@2600	11.9@2200	13.9@2500	10.2@2000	20.0@3600	12.9@2400	15.2@2900	13.4@3600	13.3@3600	11.1@3000	11.1@3000	9.7@2600
2.Engine Model	D722-ET	Z482-ET	Z482-ET	Z482-ET	Z482-ET	Z482-ET																				
1.Engine Code	D722-ET01	D722-ET02	D722-ET03	D722-ET04	D722-ET06	D722-ET06	D722-ET07	D722-ET08	D722-ET09	D722-ET10	D722-ET11	D722-ET12	D722-ET13	D722-ET14	D722-ET15	D722-ET16	D722-ET17	D722-ET18	D722-ET19	D722-ET20	D722-ET21	Z482-ET01	Z482-ET02	Z482-ET03	Z482-ET04	Z482-ET05